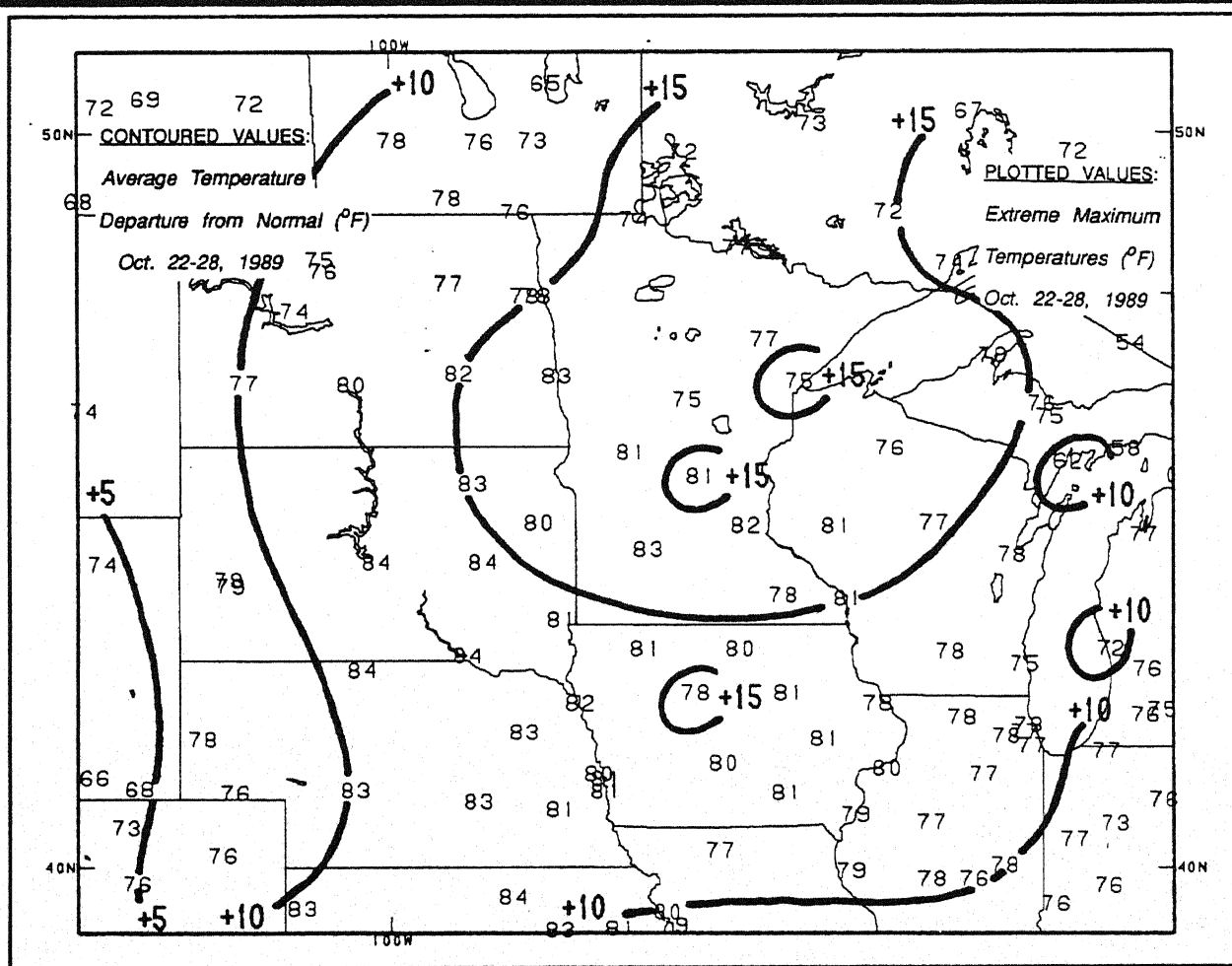


# WEEKLY CLIMATE BULLETIN

No. 89/43

Washington, DC

October 28, 1989



IN A COMPLETE REVERSAL FROM THE PREVIOUS WEEK, RECORD WARMTH COVERED THE NORTHERN GREAT PLAINS AND UPPER MIDWEST AS TEMPERATURES AVERAGED BETWEEN 10°F AND 18°F ABOVE NORMAL (CONTOURED VALUES) AND HIGHS SOARED INTO THE UPPER SEVENTIES AND LOWER EIGHTIES (PLOTTED VALUES).

UNITED STATES DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER  
**CLIMATE ANALYSIS CENTER**

# WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- U.S. cooling degree days (summer) or heating degree days (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every three months).
- Global three-month temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

*Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Climate Analysis Center via the Global Telecommunications System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.*

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# GLOBAL CLIMATE HIGHLIGHTS

## MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF OCTOBER 28, 1989

### 1. Central United States:

#### MANY PORTIONS REMAIN DRY.

Although 25 to 50 mm fell over eastern Kansas and northern Missouri, most areas in the central and northern Great Plains received considerably lesser totals. With the exception of extreme southern Texas, dry conditions eased in the southern two-thirds of the state as 25 mm to 100 mm fell over the area. [6 weeks].

### 2. Eastern U.S.:

#### ABUNDANT MOISTURE STARTS TO SUBSIDE.

After a series of wet weeks, a typical 'Indian Summer' pattern of dry weather, warm days, and cool nights dominated the region. As a result, little to no precipitation fell while moisture levels began to recede [9 weeks].

### 3. Northeastern Argentina and Eastern Uruguay:

#### HEAVY RAINS BRING FLOODS.

Significant precipitation occurred during two successive days, leaving soils saturated. Most locations received 80 to 105 mm while Corrientes, Argentina totaled 218 mm in only 24 hours [Episodic Event].

### 4. France, Spain, and Northern Italy:

#### NORTHERN ITALY REMAINS DRY.

Most of France and Spain noted light to moderate rains with totals ranging from 10 to 30 mm. Anomalous dryness in these countries has substantially eased; however, moisture remains sparse in northern Italy as no precipitation occurred [Ending at 7 weeks].

### 5. Turkey:

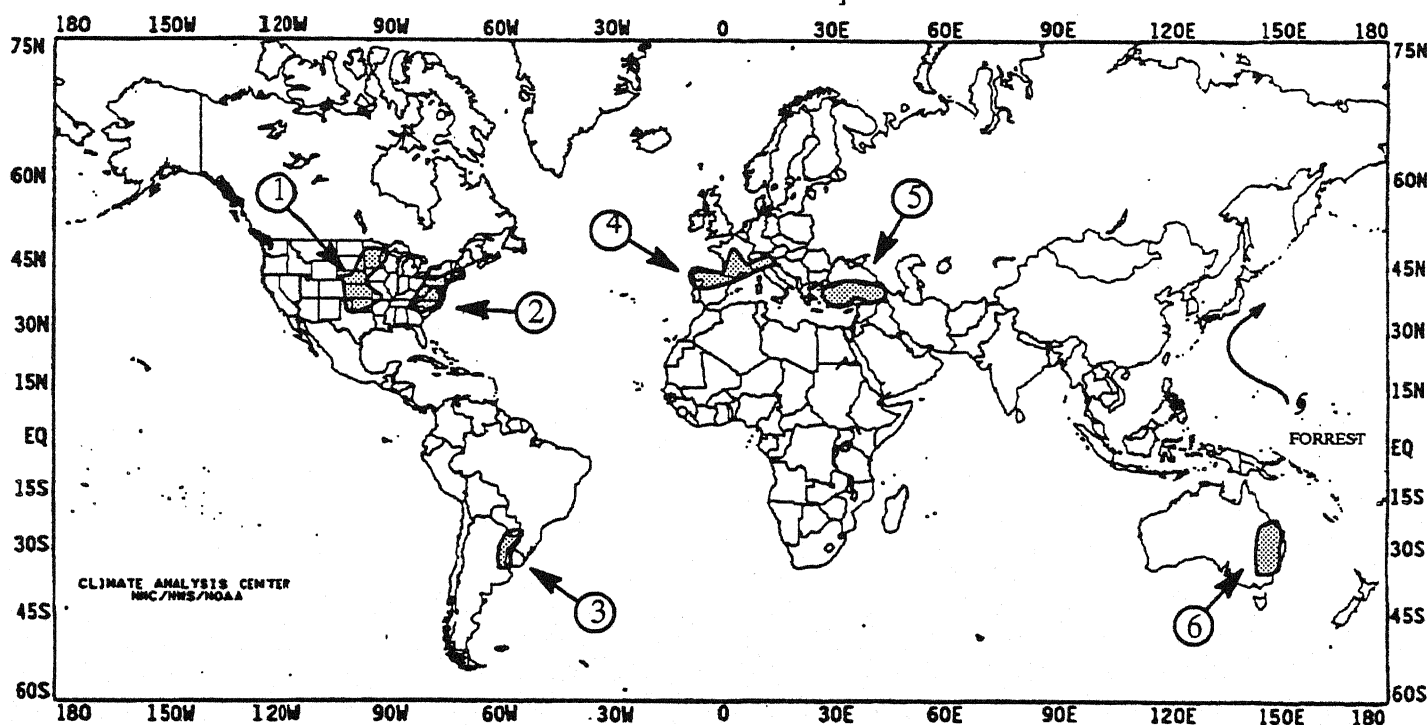
#### WETNESS LINGERS.

Welcome dry weather returned to most of the country while light precipitation (5 to 15 mm) fell in the east. In spite of the diminished rains, wet conditions persisted since totals in previous weeks were abnormally large [5 weeks].

### 6. Eastern Australia:

#### RAINS FINALLY ARRIVE.

Substantial precipitation fell over the previously parched region during mid-week. Many locations reported 30 to 60 mm while portions of south-central Queensland received 81 to 114 mm on the 24th and as much as 198 mm for the week [Ended at 8 weeks].



### EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.

MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

# UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF OCTOBER 22 THROUGH OCTOBER 28, 1989

Indian summer weather (warm days, cool nights, and clear skies) prevailed across the eastern two-thirds of the country last week in response to a large dome of high pressure anchored over the Northeast. This was the same system that had moved out of Canada and pushed record cold air southward into the central and southern U.S. just a week earlier. As it gradually drifted eastward, southwesterly flow from the back side of the high pressure center brought mild temperatures to the nation's midsection. In addition, much of the eastern half of the U.S. got a chance to dry out after recording widespread, heavy precipitation the previous week. In the West, however, several frontal systems produced significant precipitation along the northern two-thirds of the Pacific Coast and across the Pacific Northwest and northern Rockies. Farther north, unseasonably cold air replaced the near to above normal temperatures that had persisted throughout Alaska since mid-September. Early in the week, cold air still lingered in the mid-Atlantic and Southeast as several locations set new daily minimum temperature records. A storm system moved out of the Gulf of Alaska, spreading rain along the Pacific Coast and dumping heavy snows (up to 3 feet) on the higher elevations of the Cascades and Sierra Nevada Mountains. By mid-week, temperatures moderated in the South and East while record warmth enveloped the northern Great Plains and upper Midwest. A second cold front brought precipitation to much of the northern Pacific Coast region, while a developing low pressure center along the first cold front, now located over the Rockies, produced heavy snow in parts of northern Arizona, Utah, Wyoming, and Idaho. Towards the end of the week, the original front slowly progressed eastward to the Great Plains, generating showers and thunderstorms from southern Texas northward into Minnesota. Unseasonably mild weather covered much of the East and Midwest, but stagnant air caused unhealthful air pollution levels at some metropolitan areas. Scattered showers in conjunction with an area of low pressure off the southern Atlantic Coast dampened most of eastern Florida.

After excessive precipitation soaked the eastern half of the U.S. during October 15-21, this week's relatively dry weather limited heavy amounts (more than 2 inches) to south-central Texas, eastern Kansas and western Missouri, along the extreme eastern coast of Florida, and throughout the northern half of the Pacific Coast, according to the River Forecast Centers (see Table 1). Fortunately, the precipitation provided some relief from abnormally dry conditions at the aforementioned regions. Elsewhere, light to moderate totals occurred along the Pacific Coast, in the northern half of the Intermountain West, the northern Rockies, the middle Missouri Valley, portions of the Great Lakes and the central and southern Great Plains, and along the eastern coast of Florida. Little or no precipitation fell on the desert Southwest, the central and southern Rockies, parts of the upper Missouri Valley, northern Great Plains, and upper Midwest, and throughout much of the eastern third of the country. In Alaska and Hawaii, precipitation was generally below normal with the exception of a few isolated locations.

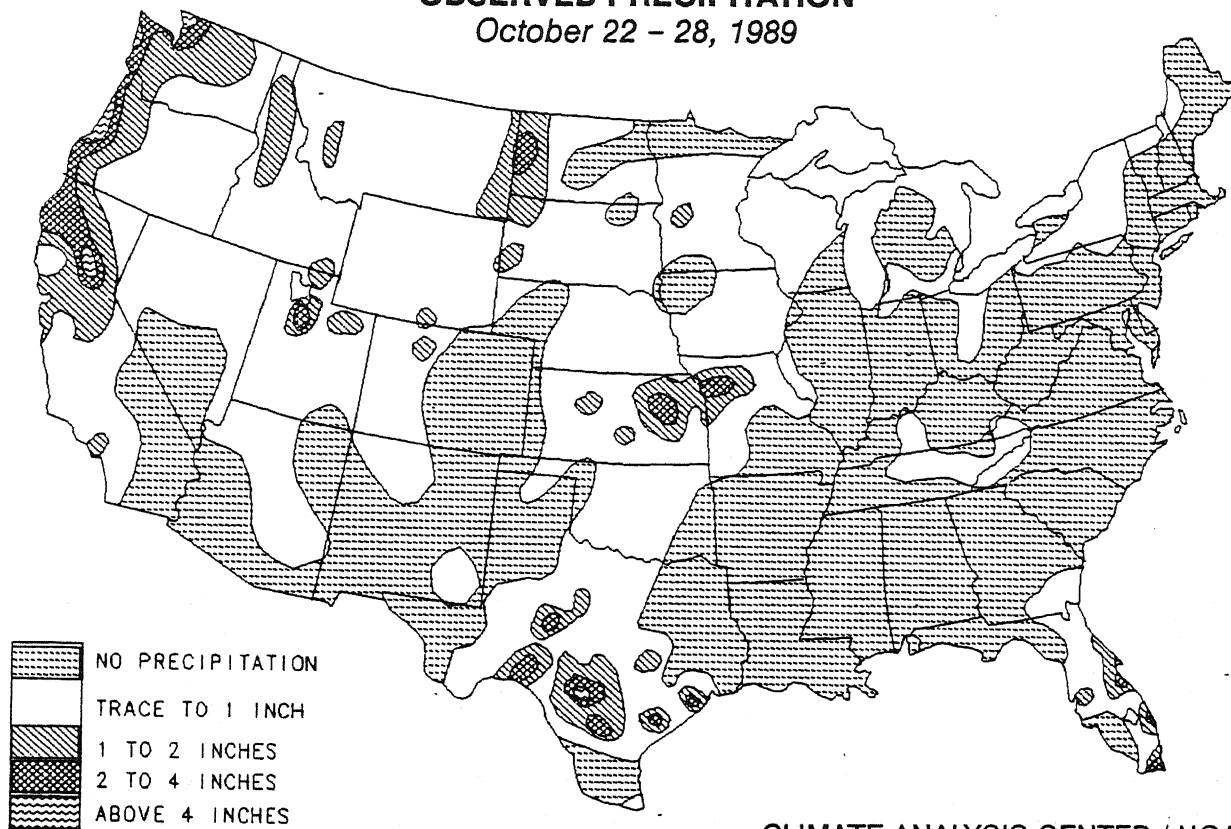
Record warmth replaced the previous week's unseasonably cold conditions throughout the nation's midsection, especially in the northern Great Plains and upper Midwest. Strong southerly winds and clear skies pushed highs into the upper seventies and lower eighties as weekly temperatures averaged between 10°F and 18°F above normal (see front cover, Table 2). Towards the week's end, "Indian summer" weather also encompassed the South and East, and dozens of stations tied or broke daily maximum temperature records during the period. In the Ohio Valley and the Northeast, however, the air was stagnant and many urban areas reported unhealthy air quality levels. In contrast, cooler weather moved into the Far West in response to a strong upper-air trough. Subnormal temperatures persisted in the southeastern corner of the U.S. as easterly flow and cloudiness subdued temperatures. In Alaska, frigid Arctic air sent readings well below zero in the central and eastern sections of the state as weekly negative departures were as great as -12°F (see Table 3).

TABLE 1. Selected stations with 2.00 or more inches of precipitation for the week.

STATION	TOTAL (INCHES)	STATION	TOTAL (INCHES)
AN, HAWAII, HI	6.72	VICTORIA, TX	2.60
"	5.14	EUREKA, CA	2.54
	4.87	FT. RILEY/MARSHALL AAF, KS	2.49
	3.97	EUGENE, OR	2.41
	3.59	CORDOVA/MILE 13, AK	2.35
	3.41	WEST PALM BEACH, FL	2.25
	3.39	CAPE CANAVERAL AFS, FL	2.08
	3.23		

### OBSERVED PRECIPITATION

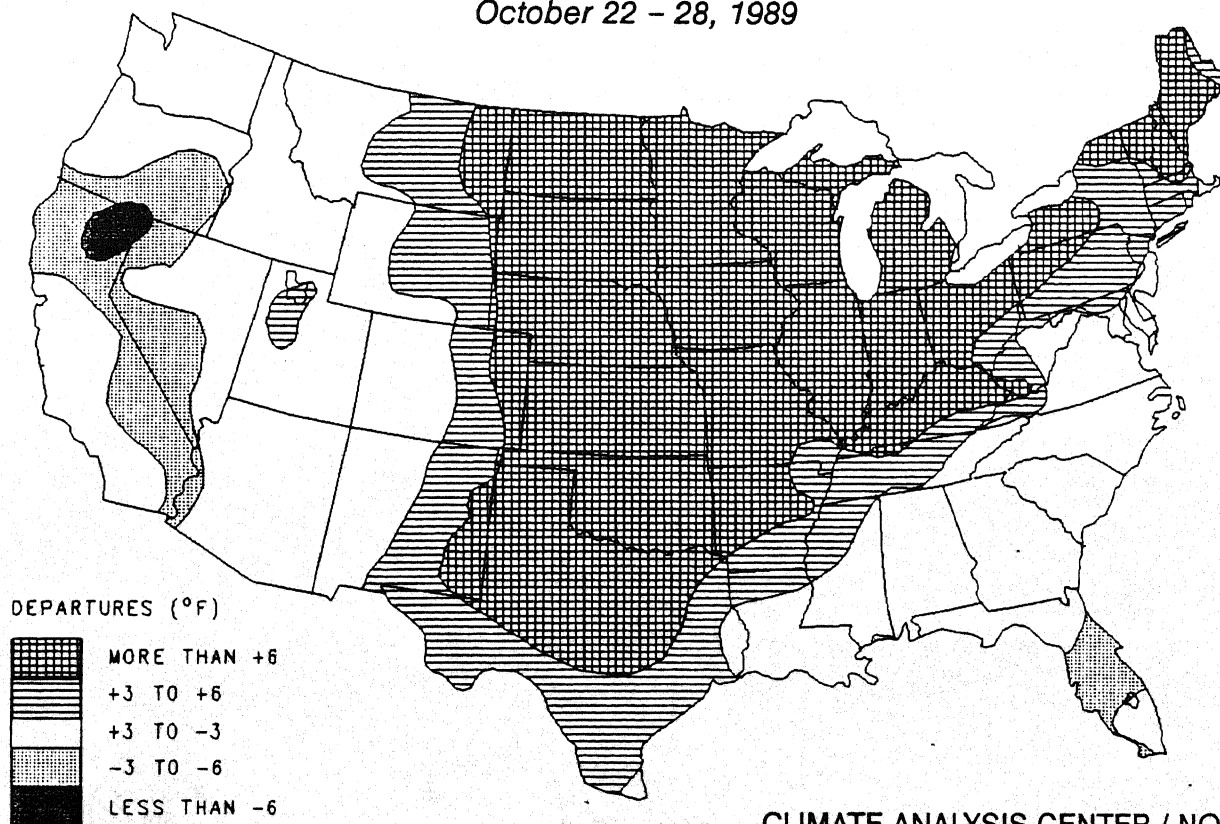
October 22 - 28, 1989



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### DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

October 22 - 28, 1989



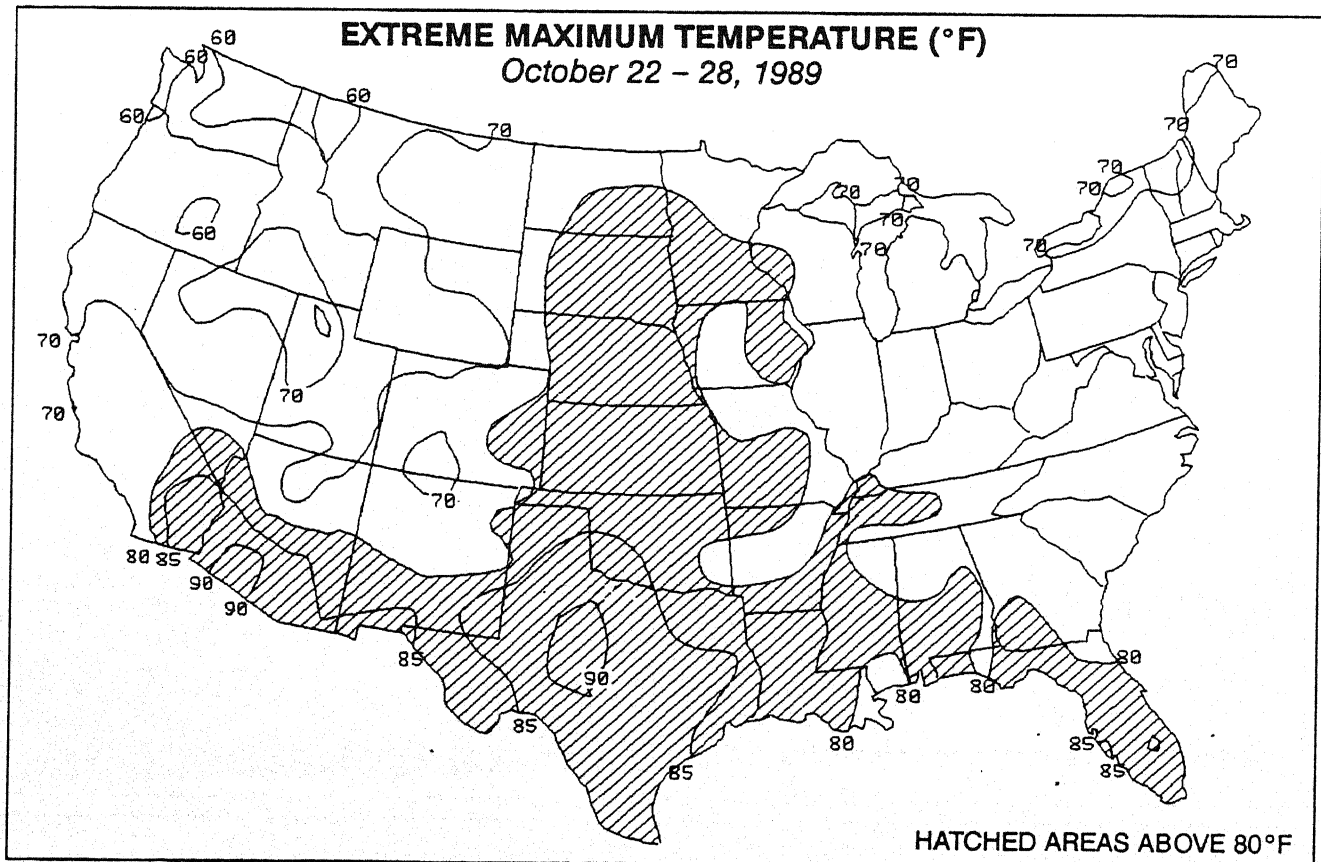
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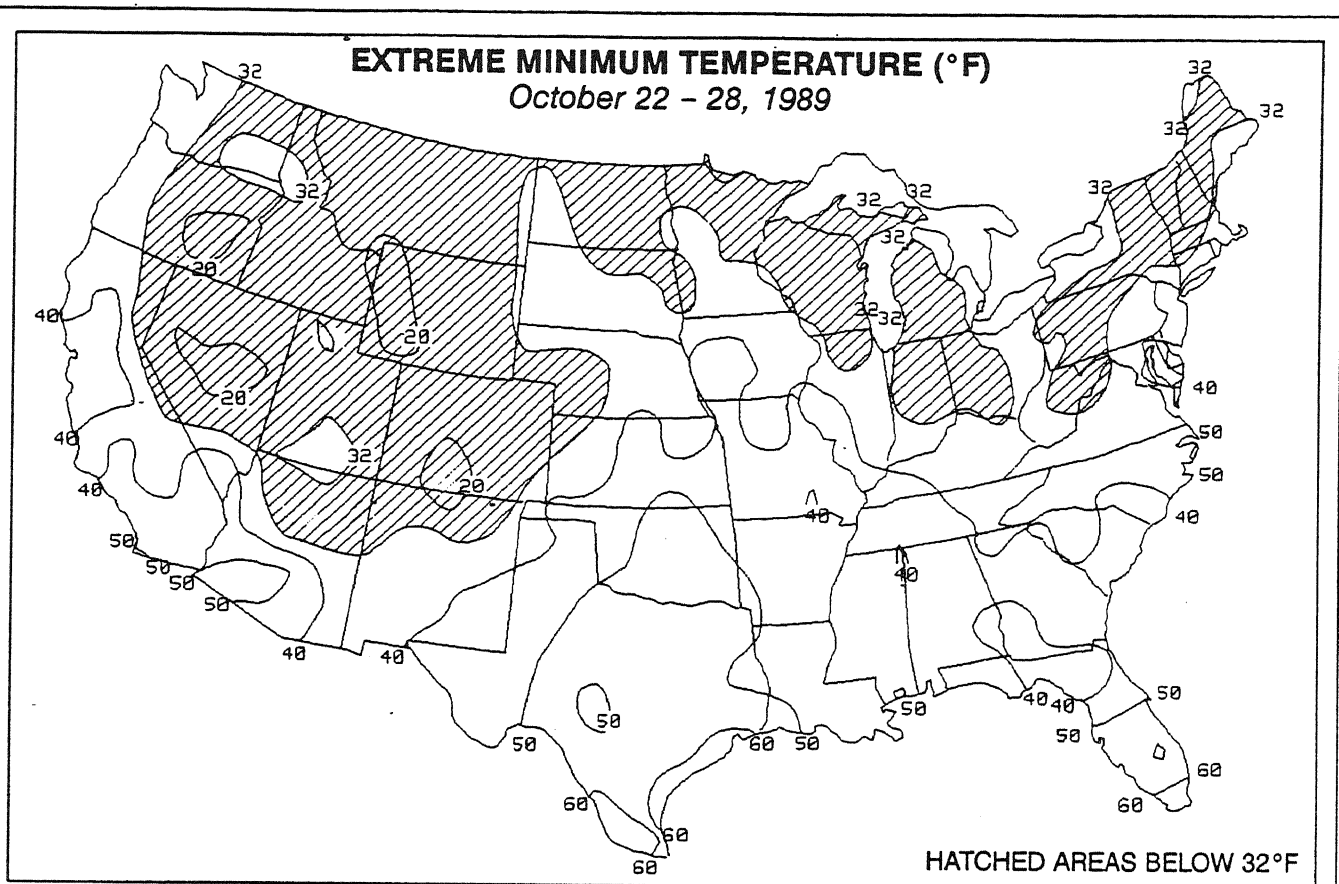
**TABLE 2. Selected stations with temperatures averaging 13.0°F or more ABOVE normal for the week.**

<u>STATION</u>	<u>DEPARTURE</u> (°F)	<u>AVERAGE</u> (°F)	<u>STATION</u>	<u>DEPARTURE</u> (°F)	<u>AVERAGE</u> (°F)
INTERNATIONAL FALLS, MN	+17.6	56.3	HURON, SD	+14.6	59.2
ALEXANDRIA, MN	+17.5	59.7	WARROAD, MN	+14.6	54.1
HANCOCK/HOUGHTON CO., MI	+17.4	58.9	FORT DODGE, IA	+14.5	62.5
FARGO, ND	+16.6	58.6	MASON CITY, IA	+14.4	60.3
WATERTOWN, SD	+16.0	58.6	DULUTH, MN	+14.4	54.8
EAU CLAIRE, WI	+15.4	59.3	ST. CLOUD, MN	+14.3	57.1
GRAND FORKS, ND	+15.3	55.9	WATERLOO, IA	+14.1	60.9
LA CROSSE, WI	+15.2	62.2	SPENCER, IA	+14.1	59.7
MINNEAPOLIS, MN	+15.2	60.6	SIOUX CITY, IA	+13.9	62.3
ABERDEEN, SD	+15.1	58.2	NORTH OMAHA, NE	+13.7	64.4
MARQUETTE, MI	+15.1	55.8	SIOUX FALLS, SD	+13.6	58.8
ROCHESTER, MN	+15.0	60.0	DUBUQUE, IA	+13.4	60.4
PARK FALLS, WI	+14.9	57.0	GREEN BAY, WI	+13.4	58.1
WAUSAU, WI	+14.7	58.1	DEVIL'S LAKE, ND	+13.3	54.0
JAMESTOWN, ND	+14.7	56.1			

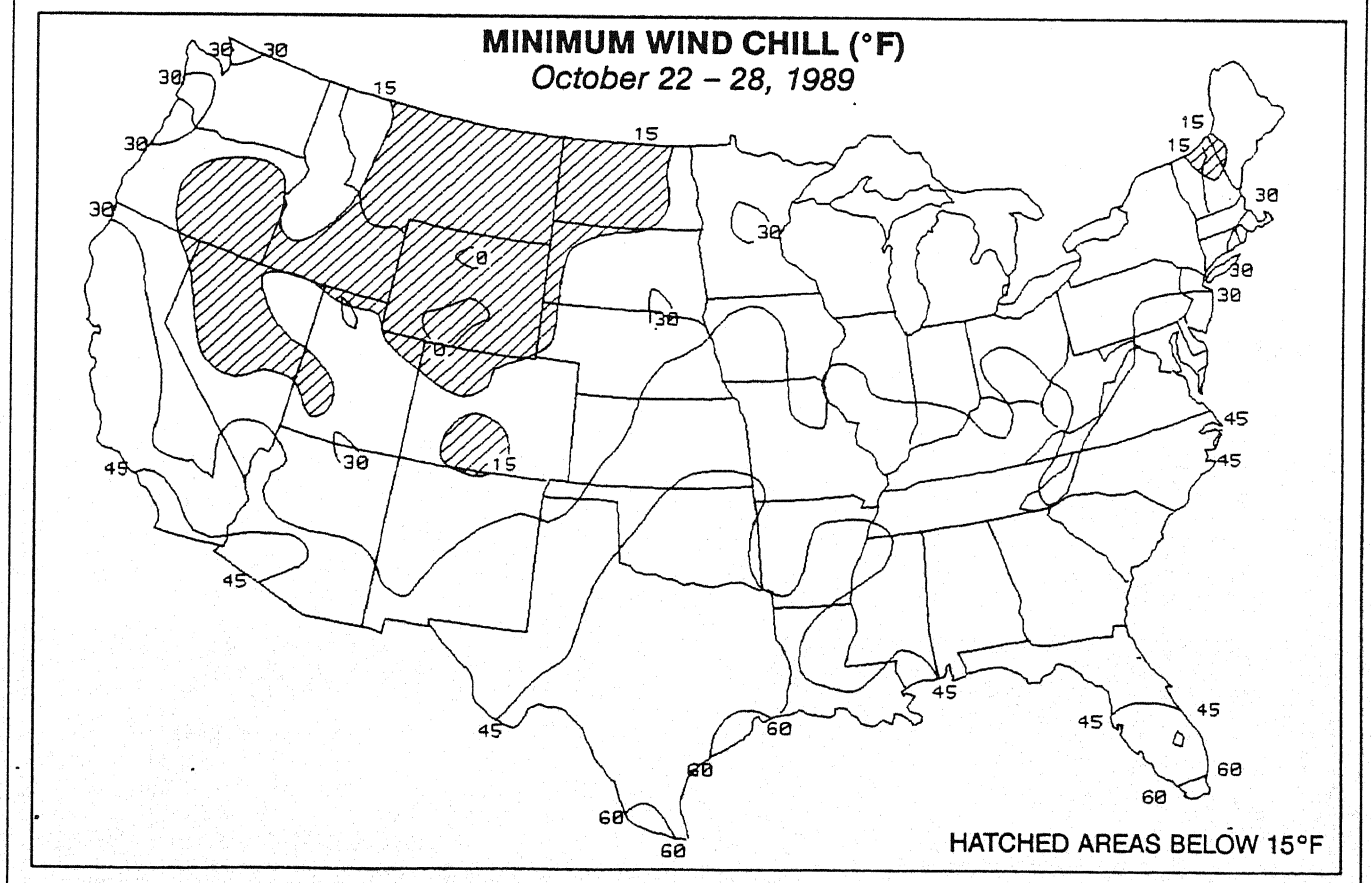
**TABLE 3. Selected stations with temperatures averaging 4.0°F or more BELOW normal for the week.**

<u>STATION</u>	<u>DEPARTURE</u> (°F)	<u>AVERAGE</u> (°F)	<u>STATION</u>	<u>DEPARTURE</u> (°F)	<u>AVERAGE</u> (°F)
BLUE CANYON, CA	-12.8	38.4	MOUNT SHASTA, CA	-6.9	41.3
FORT YUKON, AK	-12.0	1.8	FAIRBANKS, AK	-6.8	12.1
BETTLES, AK	-10.9	2.9	MCGRATH, AK	-6.6	12.8
BIG DELTA, AK	-10.9	8.9	RED BLUFF, CA	-6.2	55.5
KOTZEBUE, AK	-10.4	7.6	MEACHAM, OR	-5.2	37.1
TALKEETNA, AK	-10.3	17.2	GAINESVILLE, FL	-5.2	64.2
GULKANA, AK	-9.1	12.9	NORTHWAY, AK	-4.9	9.7
ANCHORAGE, AK	-8.8	21.9	DAGGETT, CA	-4.9	60.3
SEXTON SUMMIT, OR	-8.6	39.4	UKIAH, CA	-4.8	54.1
REDDING, CA	-8.3	54.3	CORDOVA/MILE 13, AK	-4.5	32.7
UNALAKLEET, AK	-7.7	14.7	BRUNSWICK, GA	-4.5	61.7
KENAI, AK	-7.6	23.4	TONOPAH, NV	-4.3	45.0
BURNS, OR	-7.5	36.8	BLYTHE, CA	-4.3	67.3





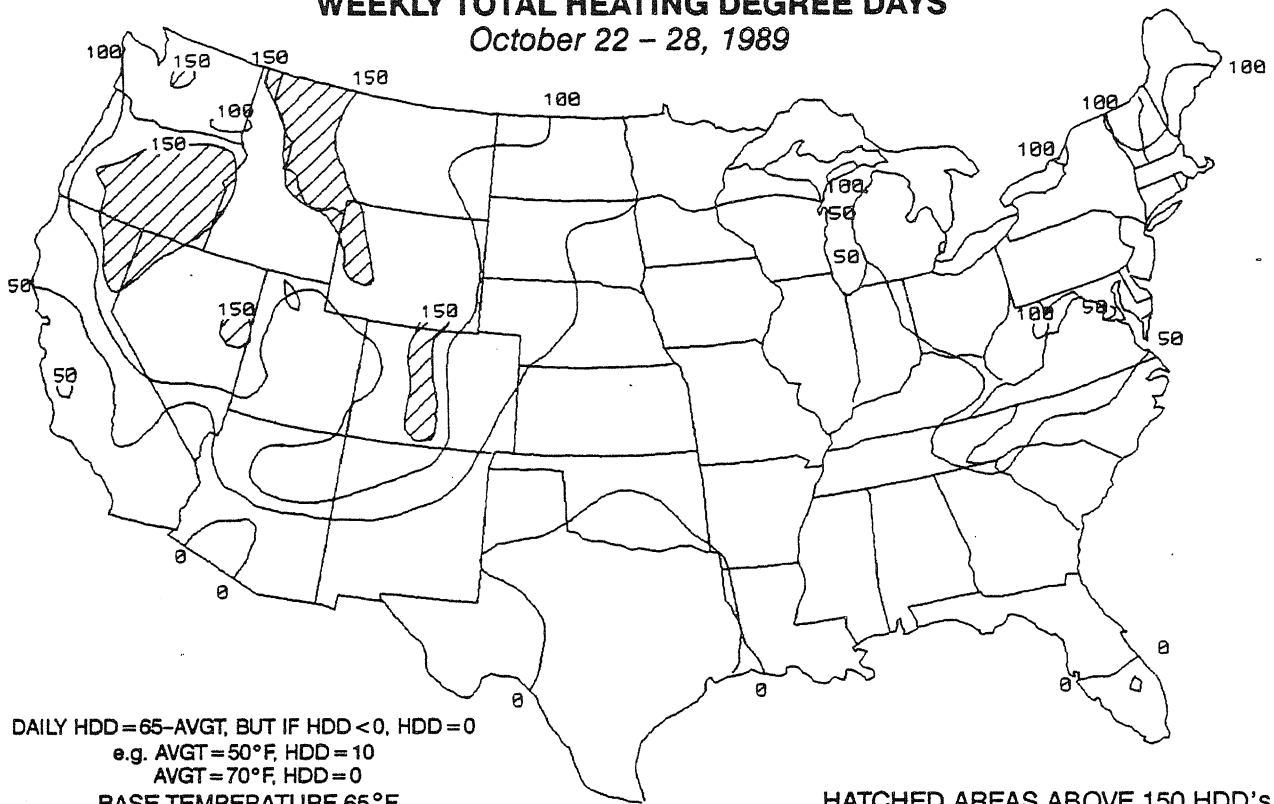
Abnormally mild weather east of the Rockies limited readings in the twenties to a few northern locations early in the week while cold air in the far West dropped lows below 20°F in the Great Basin and Rockies (top). The combination of low temperatures and strong winds created subzero wind chills in Wyoming (bottom).





## WEEKLY TOTAL HEATING DEGREE DAYS

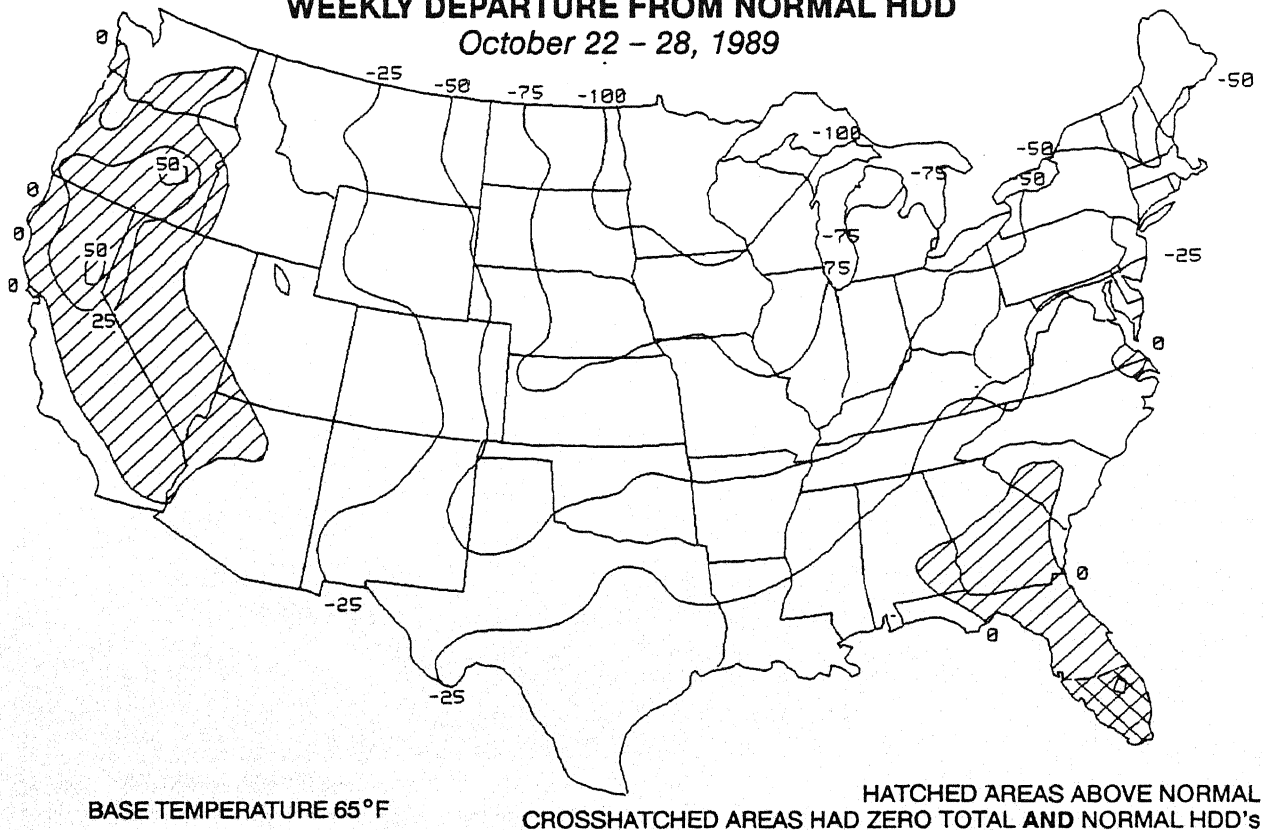
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"Indian Summer" weather throughout the eastern two-thirds of the country kept weekly heating usage generally under 100 HDD's while cooler air in the West pushed HDD's above 150 in the northern Rockies and Intermountain West (top). While most of the lower 48 states had less heating demand than usual due to mild conditions, unseasonably cold weather pushed weekly heating usage above normal in the far West (bottom).

## WEEKLY DEPARTURE FROM NORMAL HDD

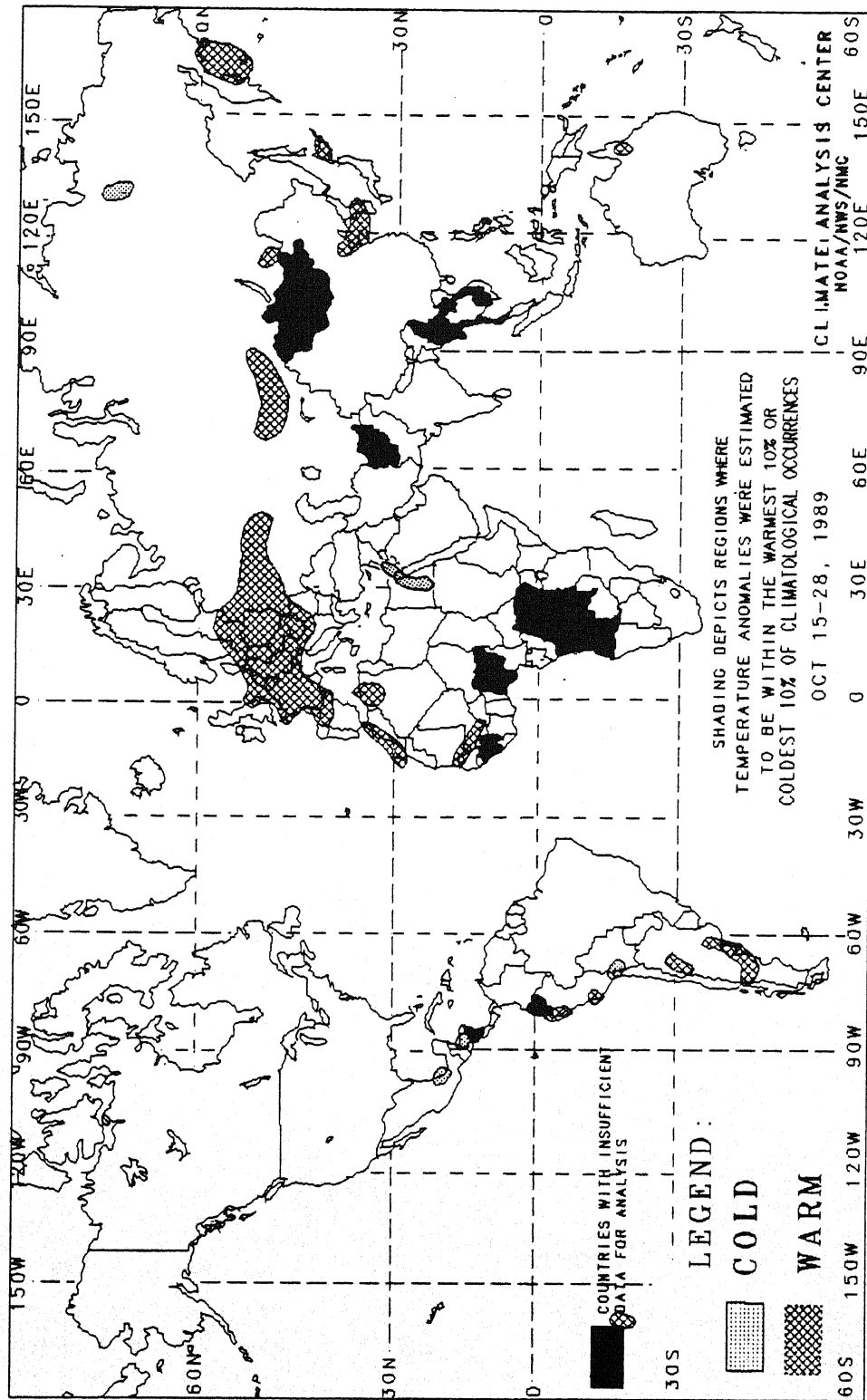
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# GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

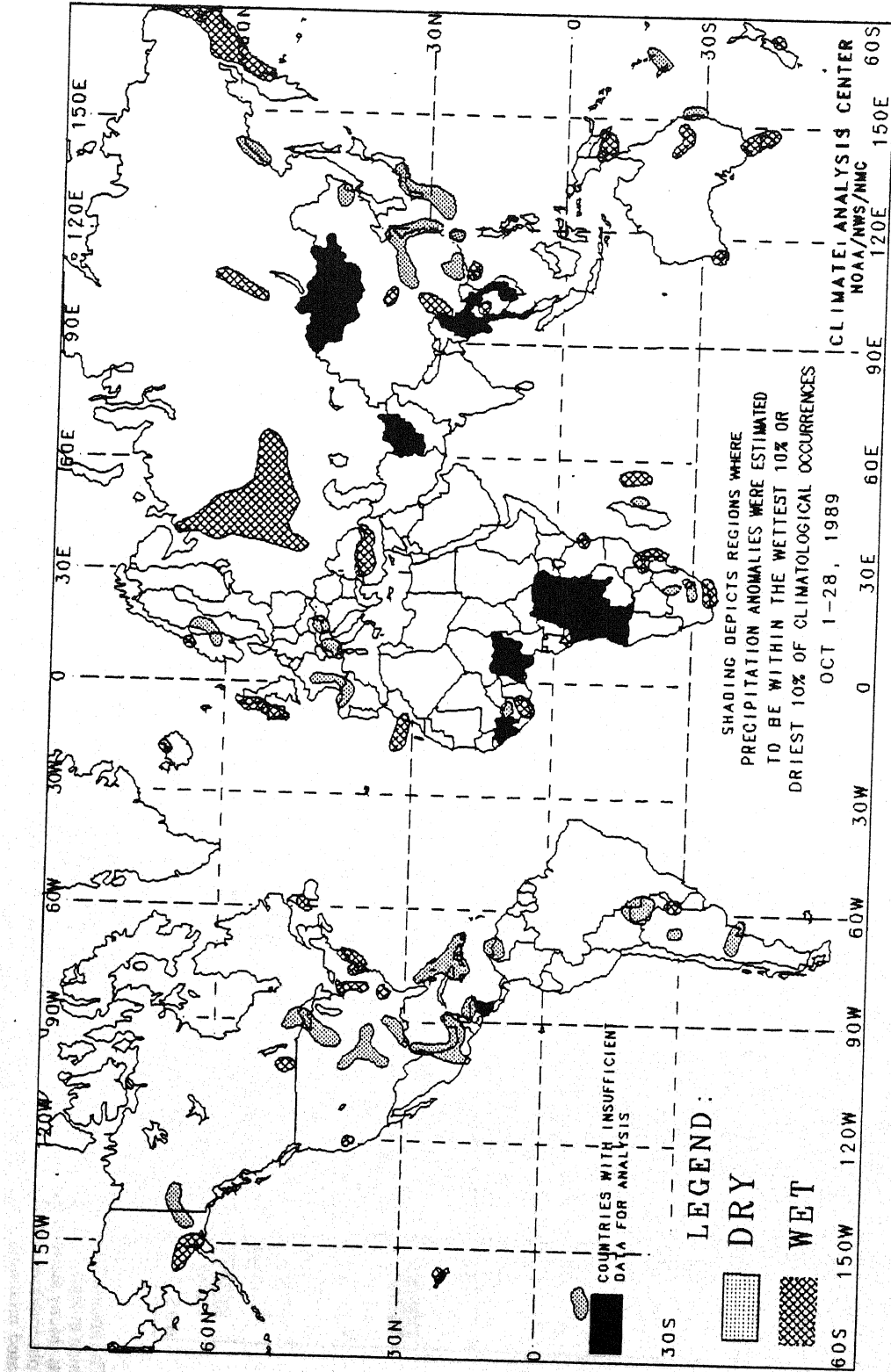
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

# GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

